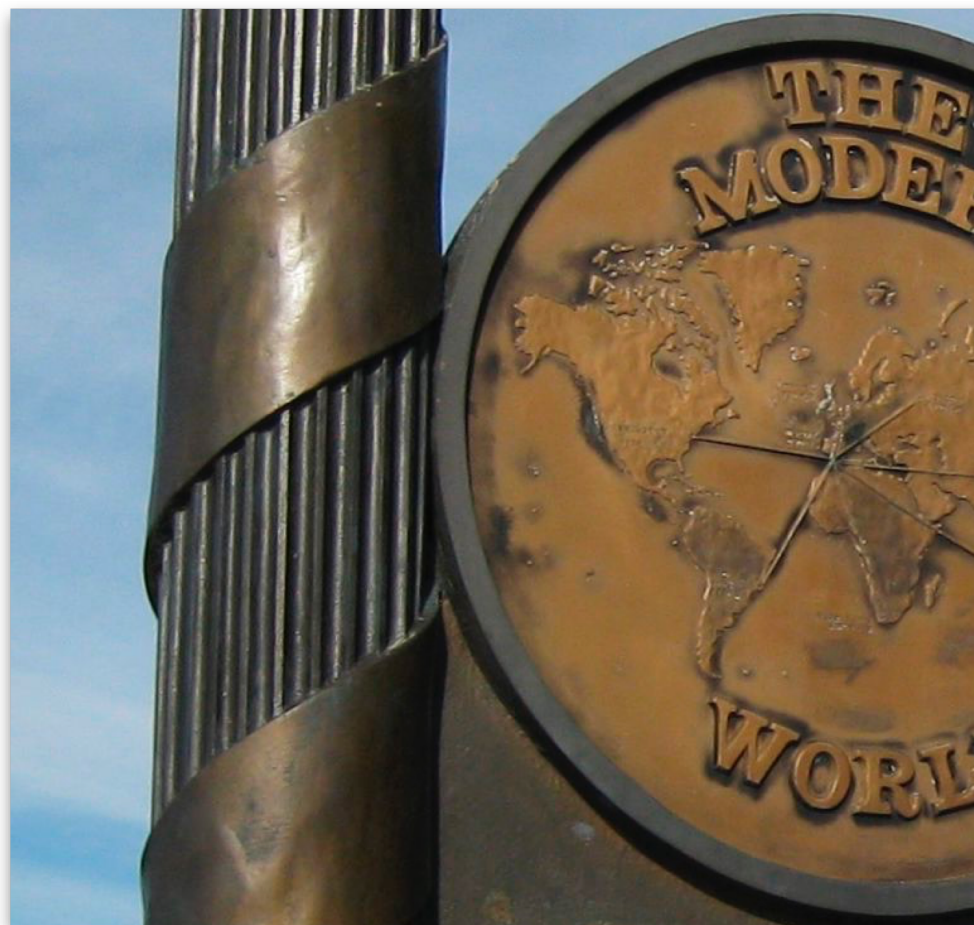


Digitizing with Single Archive

SCAN YOUR IMAGES WHILE I

Scan your images while





Introduction

LaserSoft Imagi

Chapter 1

Our disregarded heritage: millions in large private and public archives digitised, as scanning was previously could only be performed by experts



The SilverFast Single Archive Com
unmatched solution for scanning la
just one click. A special [scanner ra](#)
no data is lost from scanning to pro

Until shortly after the turn of the millennium, only ones who could operate a scanner. They were large and expensive; the equipment was so heavy that several people were needed to carry it.

The rapid technical development has meant that scanners have moved into private households. With the right scanner operator today. With the help of a scanner, you can scan with a speed that would make any scanner operator today. The [Single Archive Command](#) is a supplementary software, which makes scanning as easy as a few clicks, you can start scanning. SAC comes with a variety of scanning scenarios particularly easy. The software follows the basic rules of image processing and thus makes it possible to create high-quality scans.

Why scanning is so important right now, why it is so important and how the Single Archive Command can help us, we are going to take a closer look at together. With the Single Archive Command, we have a lot of experience back on more than 30 years of experience in the field of color management. Images shape and influence our lives, we can only wish that you can make the most of them. Kiel, December 2020

Karl-Heinz Zahorsky

President & CEO

LaserSoft Imaging AG

LaserSoft Imaging





With SilverFast SAC a suitable flatbed scanner, SilverFast's [color calibration](#) provides more color accuracy, [exposure](#) increases the [dynamic range](#) and throughput, and [compression](#) rates the scanning process up to 75%; SilverFast is the next level of your device.

The next level for

LaserSoft Imaging

How a scanner becomes the perfect archiving solution

Flatbed scanners are becoming more popular among photo enthusiasts. The results can be impressive. Thanks to SilverFast SAC you now have a better scanning device, because scan speed has been





The next level for

An optimized scanning method has
SAC scanning process compared to
Depending on the device and film
be saved and digitization projects

>60% faster*

without SAC



with SAC



* SilverFast SAC, Epson Perfection V850, Batch Scan, HD

>75% faster*

without SAC



with SAC



* SilverFast SAC, Epson Expression 12000XL, Stapel-Scannen

As a photographer, you have a pool of images that seems impossible to scan and edit in too much time. And yet there is a need for which the pictures are located has only a

Permanence of Fi

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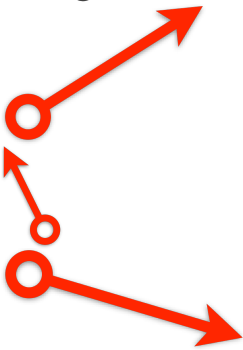
Chapter 3

The permanence of images on film
digitize in time risk loss of quality
uselessness of the film.





Fungus and age have considerably damaged this pic



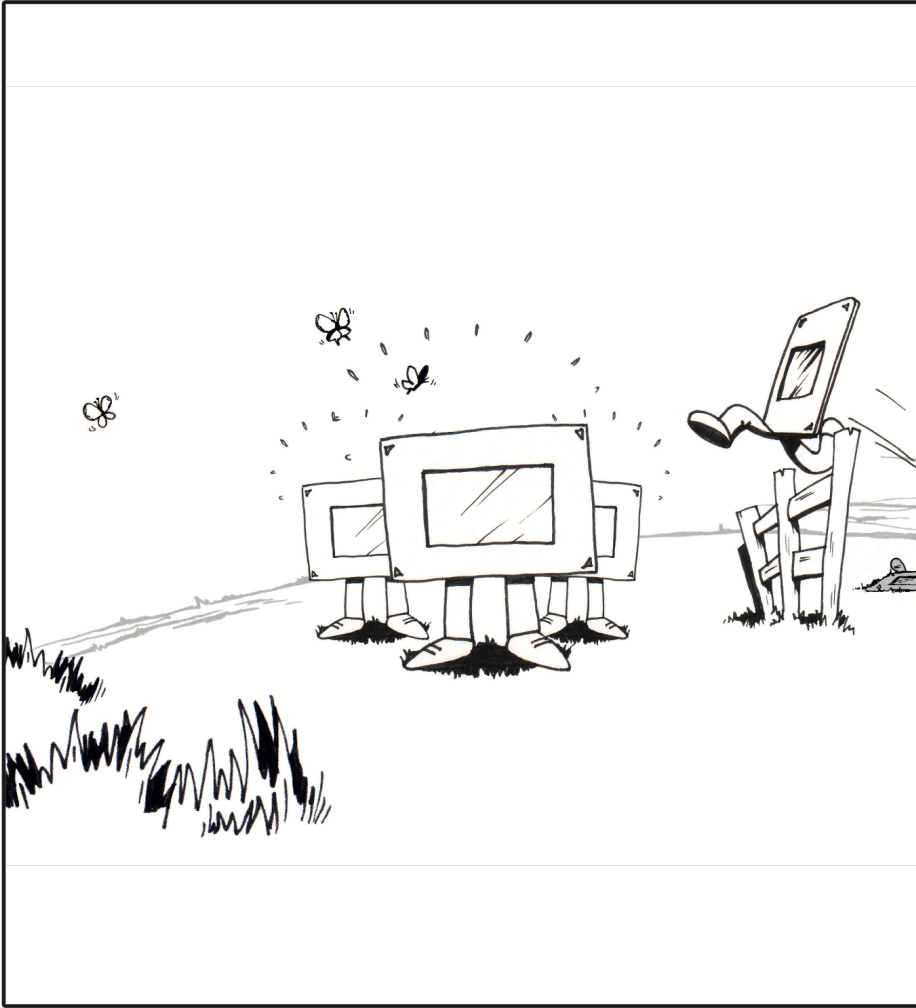
The American **Wilhelm Imaging Research** studied the permanence of various film materials, finding the results quite alarming. Many films have a very limited shelf life due to the chemistry used in the development of the emulsion. At the end of laboratory development, the process is slowed down, but it cannot be stopped altogether. A film from the 80's, which lasts 40 years, will start to disintegrate in the next few years. This is a common problem, especially with glass-framed images.

age to the film material.

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"Let's get out of here, the mushroom's coming. In th
him..."

We therefore strongly recommend that you do not lose quality or even become unusable. So as easily as possible, we have developed the SilverFast based on a **scanner raw data concept**. Scanners are connected in terms of time and space, making it possible. The SilverFast **raw data format** is ideally suited for larger quantities of images. There is no need for processing in the first place, since the complete image is saved during the scanning, but as second step. At the end, the image is saved and thus protected from expiry.

Raw data is the key to a digital archive

LaserSoft Imaging



1. Scan



2. Edit

In connection with the SilverFast Single A particularly easy. Thanks to a felicitous selection process requires no knowledge of image processing of the software. This means that out making mistakes.

Image processing is then performed at a level comfortable with image processing. As a result, the scan to be completed to working on the document. This process is supported by a JobManager for batch image processing.

The durability of film is limited and digital works against us in more than one sense. we would like to introduce you to our fast takes all important quality parameters into



HDRi RAW: flexible and safe Archiving format

LaserSoft Imaging



Result

Excuse

In the first step of the scanning process, the importance in terms of image quality and the editing process. Even though the presets do not require expert knowledge to digitize images, I explain some principles that underlie our approach.

High-quality RAW convincing quality

Chapter 4

In times of HDR effect frenzy, it is quality in the first step ultimately of components: resolution, number of



Resolution

Part 1

Resolution is the first quality parameter to consider. Resolution has a great influence on the size of the print during scanning and processing. Resolution is often regarded as the decisive factor, true to a certain extent. A higher resolution means more image details. Increasing the resolution doesn't give us more detail, but dark areas, however, suggest that there are more details.

Resolution is important for magnification. The higher the resolution, the larger you can print the image.

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No increase in details due to the higher resolution

A visible difference, however, results from what is achieved by a [Multi-Exposure](#) scan.

Typically, 228 ppi (pixels per inch) is enough for a final size. A higher resolution also allows the image to be enlarged. The lighthouse is an example of enlarging a slide on a printer that prints at 300 dpi.

For raw data scans we recommend the highest [optical resolution](#), unless you already know that you will not need the images in high resolution for a magnification under any circumstances. If you set the resolution manually in SilverFast, the highest optical resolution is the penultimate resolution, which can be set by the resolution of the scanner. The highest adjustable resolution is an interpolated resolution. The presets of the ArcSoft Command do not use interpolated resolution.



No gain in detail due to the higher resolution, but a significant increase in output.

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More about grayscale and multi-exposure in the next

Grayscale and Dynam

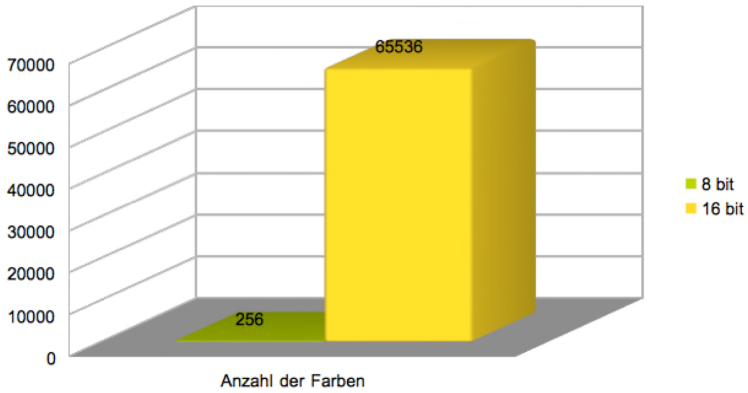
Part 2

A high number of gray levels is a decisive factor. In the following, we will shed some light on the number of gray levels of them you should ideally have.

For image processing, the number of gray levels of an image is more important than its resolution. The number of gray levels that can be reproduced depends on the color depth. Typical color depths are 8 bits or 16 bits per color channel. In a 24-bit image (8 bits per color channel) up to 256 gray levels can be distinguished; in a 48-bit image up to 65536 gray levels can be distinguished.

24 Bit or 48 Bit - how many grayscales
Normally there is no visible difference between 24-bit and 48-bit files. However, 48-bit files take up twice as much space as 24-bit files. Are they used at all?

A high number of grayscales maintains image quality during processing.



A tonal value spread may occur during scanning. The input data often covers only a part of what is available . It can therefore be spread out so that the possible scope is used in full. The additional gray scales allow for more color shades.

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The image data is spread to cover the histogram in full.

The input histogram covers only part of the available histogram.

The processed image looks more vivid and contrasty.

The unprocessed image has low contrast.

[Click to see video in full screen mode.](#)

However, this spreading can also result in tiny gaps in the histogram, which can manifest themselves as color disturbances in fine color transitions.

This happens especially when there are not enough grayscales available, as is often the case with 24-bit files. Therefore, the raw data format always uses 48 bits for color and 16 bits for grayscale or 16 bit per channel to put it differently.

As long as you are still working on the image, it will work on the image later, the 65536 pixels offer considerably more scope than a 24-bit image. However, if the image is fully optimized and the 24 bits are sufficient to present the final image.

More grayscales through multiple exposures

A good analog SLR camera with suitable film material can capture more apertures than simple scanners can read in later. The dynamic range of the

original is then greater than that of the scanner. What the scanner cannot capture in the first place, however, cannot be retrieved later and is lost.

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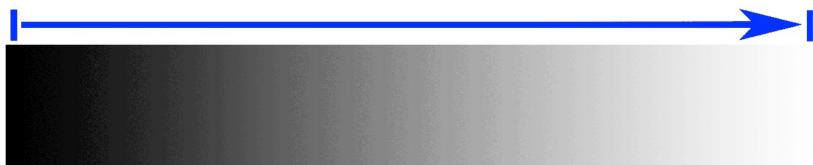
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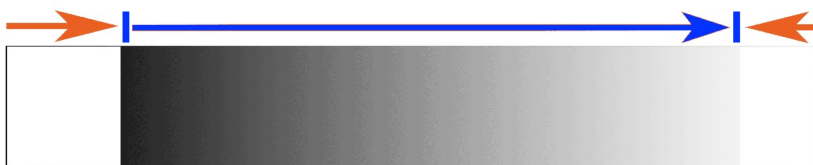


24-Bit images with typical gaps after image processing.

Das gleiche Bild mit 48 Bit hat ausreichend Graustufen für eine Nachbearbeitung ohne Abrisse.



Dynamic Range of the analog original

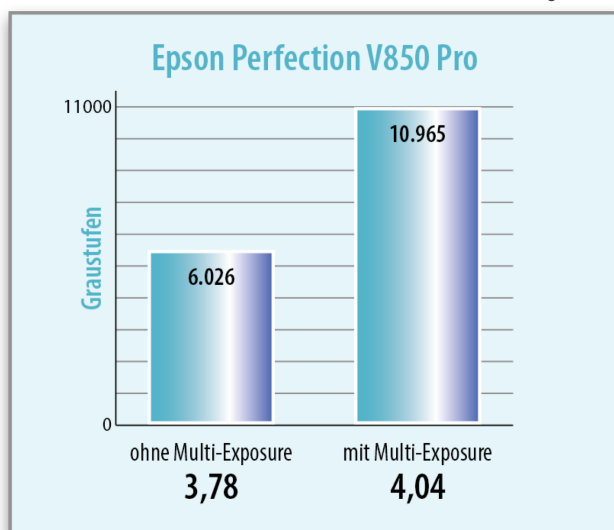


Dynamic Range of the scanner (example).

The scanner can't see any details in the areas left and right.

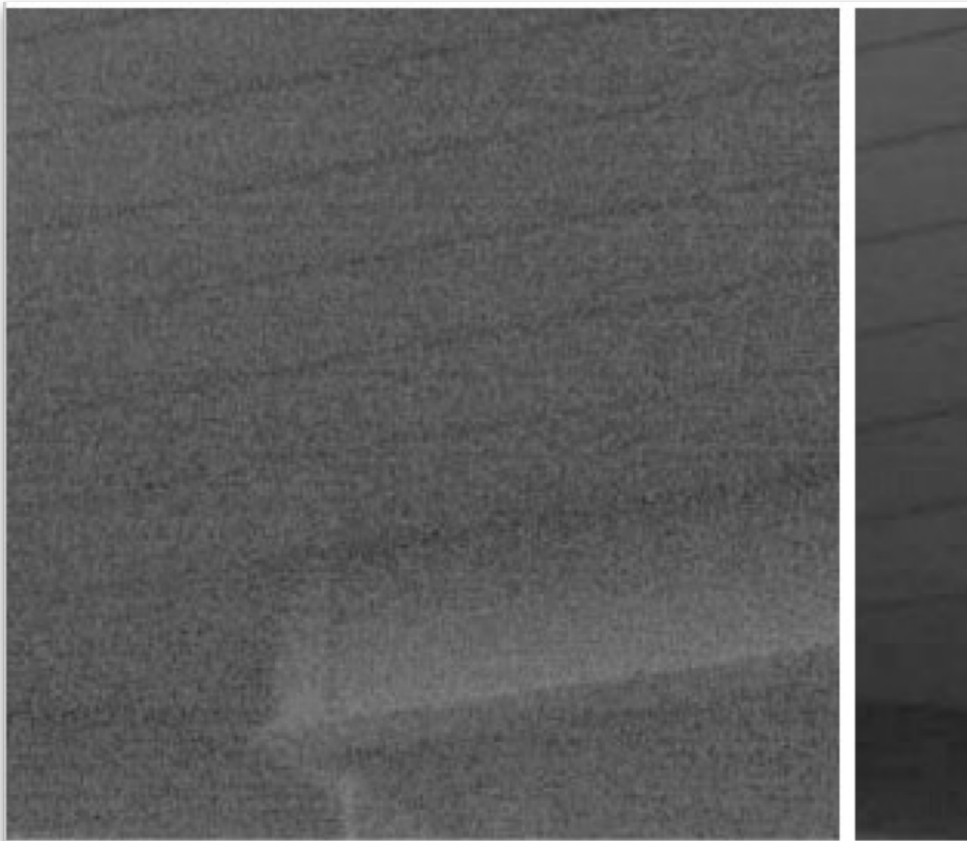
As a result, the patented multiple exposure technique called Multi-Exposure was developed. VeriFast, which increases the dynamic range of the scanner by a multiple exposure of the image at different exposures. This allows the scanner to capture more gray scales and obtain fine details and gradients in the original during image processing.

Multi-Exposure requires some additional scanner, but can be activated without res materials. Image noise is minimized and the The function works fully automatically an



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Left: Scan without ME, Right: Scan with ME; clearly

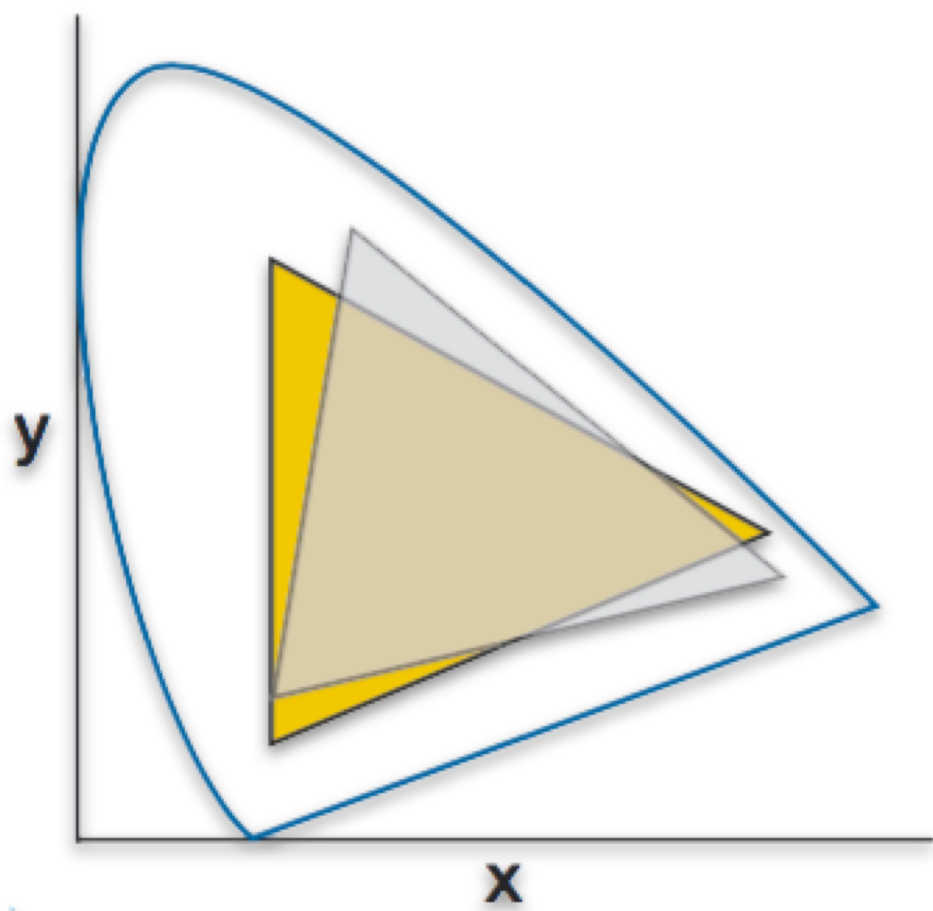
Scanner-Calibration

Part 3

The third crucial aspect that we want to consider is the color space of the scanner. It cannot be taken for granted that two images will look the same during scanning, on the monitor, or when printed. In the background, a color management system is needed. In order to be able to work precisely, an ICC profile is required. Each scanner, monitor and printer has its own device-dependent color space within the LAB **color space**. The golden triangle and the grey triangle represent the color space of different devices. Colors outside the common area cannot be displayed on the other device.

No color management without ICC profile is correct representation possible.





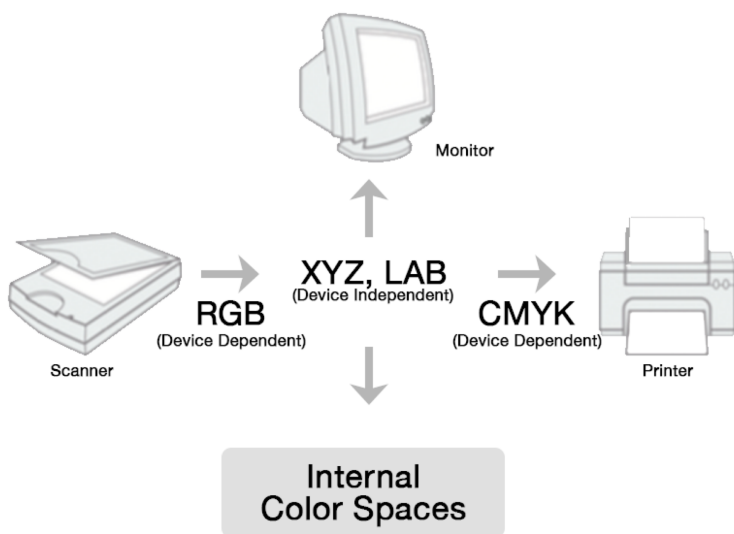
A color management system ensures that these different color spaces permit uniform results. These device-specific color spaces are described in so-called ICC color profiles. Colour management can therefore be seen as a kind of interpreter who translates and mediates between the different colour profiles. The more precisely the color profiles described, the more precisely the color management the profiles and ensure that the colors look SilverFast is delivered with pre-installed I ver, even more precise results can be achieved calibration. Especially in a professional context: it is crucial here that the results are a are satisfied with their image.

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Caution: The human eye registers the smallest devi



Scanner, monitor and printer use their own color spaces, which must be harmonized.

The term scanner calibration is often used by scanning and matching a so-called IT8 target that precisely describes the color space used. The device itself is not changed.

SilverFast embeds the color profiles into the image which the image was originally digitized from.

A color calibration is the basic requirement for archiving and offers a plus in quality and is therefore for archiving.

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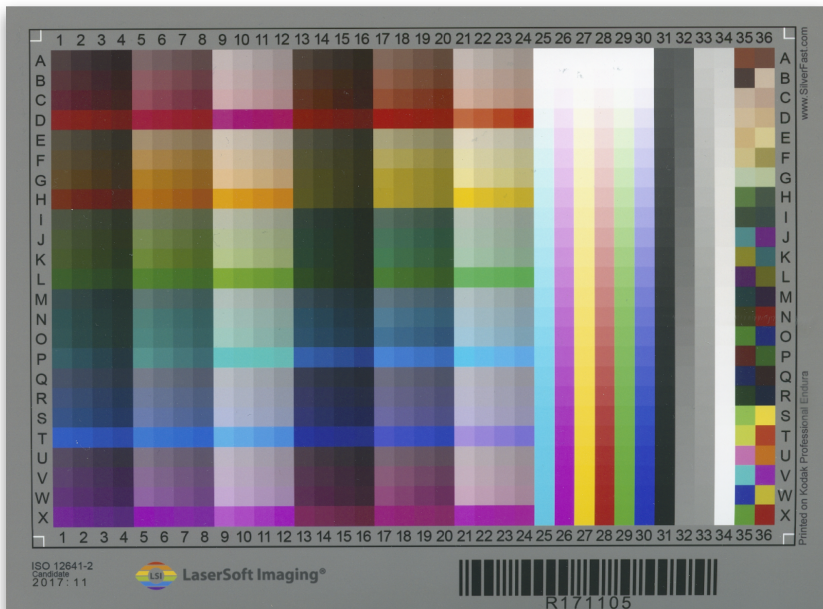


IT8 Calibration in SilverFast

LaserSoft Imaging AG has also been known for its production of high-quality IT8 targets for color calibration. With patented barcode technology, the calibration process in SilverFast runs almost fully automatically with no prior knowledge.

Calibration-Targets

Color calibration is a complex topic, but the experts of LaserSoft Imaging make this technology accessible and operable for everyone.



Left: IT8-Target according to ISO 12641-1, Right: Ac according to ISO 12641-2 (Candidate) with a lot more points...

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Calibration is regulated by ISO standard 15426, which is divided into Part 1 and Part 2. Part 1 describes the requirements for the calibration of measuring equipment, while Part 2 describes the requirements for the calibration of measuring equipment used for the calibration of measuring equipment. Part 2 gets with more measuring fields for higher accuracy. A selection of targets for the profiling of reflective material can be found here: [Target Selection](#). Having explained the most important parts of the standard, we will now turn to the software that is built around them.

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LaserSoft Imaging's IT8 Targets

LaserSoft Imaging



If you want to scan large quantities of images, the process is very time-consuming. The confusion arises because at least basic knowledge of image processing is actually where the SilverFast Archive Suite works in.

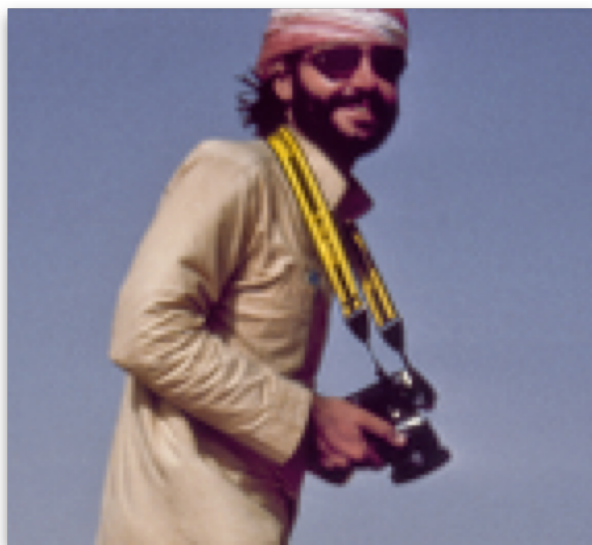
Archiving with SilverFast Archive Suite and

LaserSoft Image

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The Single Archive Command is aimed at scanning a large pool of images. Time is a simplification and time saver is a must.



« I have one million plus, Kodachrome transparencies in my image library. The process of digitizing these images has made it clear, my number one factor is the time it takes to remove dust and scratches. Thank god for SilverFast software. The dust and scratch removal function within SilverFast software has been an enormous time saver. Do I endorse SilverFast software? You bet.



The Single Archive Command is the logical SilverFast Suite concept: in order to be able to save from aging, decay and fungal attack quickly and simplified even further.

With the Single Archive Command, the time for each scan is no longer necessary. Presets and processing with just one click.

Basically there are two types of scans, which are executed with the Single Archive Command. For slides and 35mm film there are film h

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What you do

Run SilverFast SAC

Pick a preset

Set file name

Hit "START" - Button

Relax / Restock Holder

What Silver

Hi

So



ly automatic image detection. For those in
is an excellent choice.

Everything else requires manual frame ad
needs to be done in the manual mode.

Presets allow you to scan to HDRi RAW [ra](#)
All settings are protected against unwanted
password. This means that scanning can r
sistants without hesitation. The Single Arc

raw data even easier and more secure.

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—

**Fill the holder, scan, Refill the holder. Working with
process.**

Archive Suite Concept

Part 1

Until now, a lot of experience was required in digitizing and post-processing, because one who made a mistake or wanted to redo that was very time-consuming...

Raw data: scan once and for all! No more...

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Scanning with SilverFast Ai Studio 8

Fastest Image Archiving into HDRi^{RAW} Files

Batch Scanning into 64/48 bit HDRi^{RAW} Format

Including

- Automatic IT8 Calibration
- Automatic Frame Detection
- Multi-Exposure – Maximum Dynamic Range
- Infrared Scan for later
iSRD Dust & Scratch Removal with HDR Studio

*User opens Images from his
Archive for Image Optimization
(anytime & anywhere)*

*HDRi^{RAW} original Image Data
is never touched during Image
Optimization*

User Image Archive

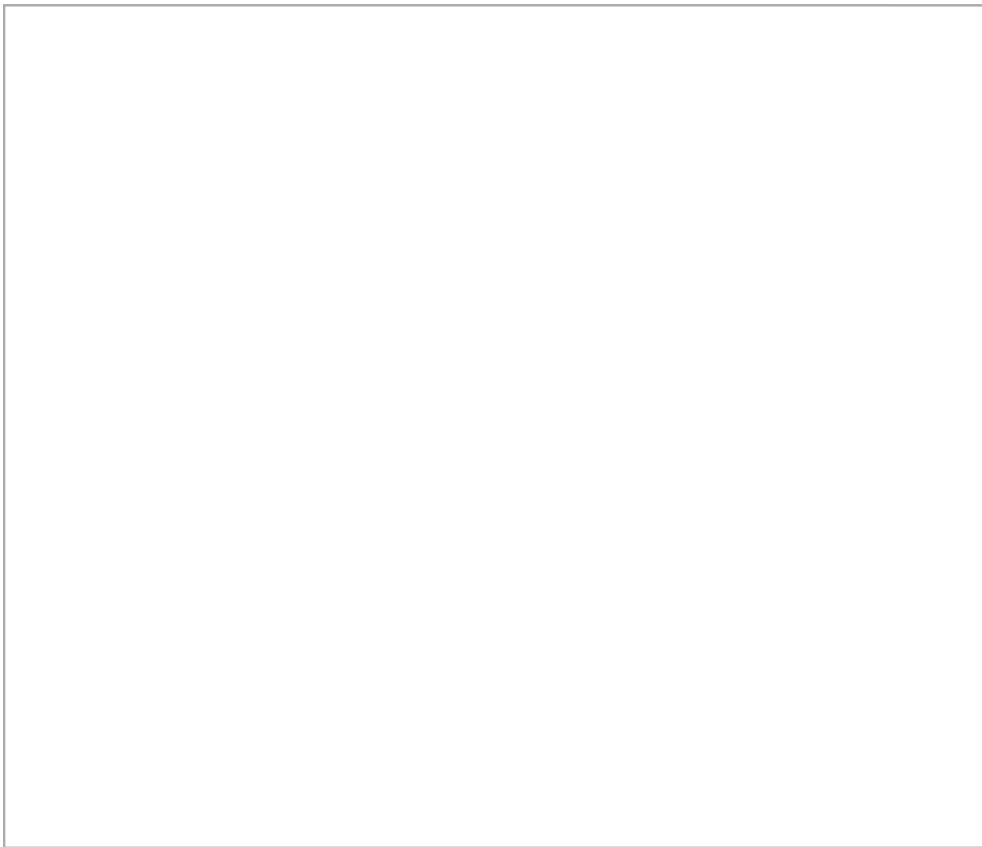


Left: Scanning RAW Data Images, Right: Processing

This is different with the Archive Suite compared to the previous version. This results in a number of separate steps. In the first step, all scanner data is saved. In the second step, the data is only processed in the second step, which can be changed. The processing steps are saved and can be continued or discarded at any time. Only the final results are saved, which then contain the adjustments. This is different from SilverFast HDR Studio, where the same tools are used in the same order.

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Your advantages in a nutshell:

-
- Scanning and editing can take place on different machines.
-
- Scanning and editing can be separated spatially.
-
- The processing of the images can be repeated.
-
- The current processing is saved as an additional file.
-
- The raw data is retained, so processing can start from the last point or from the beginning.

Why SilverFast RAW 1

Part 2

When selecting the parameters for digitization, you must know how you want to use the digital image. You must determine depth, resolution, sharpness, etc. for it. He must determine at this early point in time.

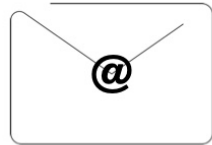
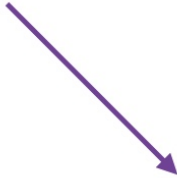
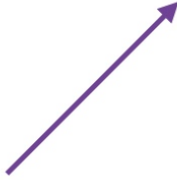
Unlimited scope of applications

In order to solve this dilemma we have introduced HDR(i) RAW in SilverFast. The raw data is captured on, possibly even the highest optical resolution sensor later: an enlargement can be realized just by a projection set or beamer, the dispatch by mail or by

Raw data offers maximum quality
SilverFast raw data can do even more

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Non-destructive Editing

The raw data is always retained (non-destructive) and it is always possible to return to the original. Optimizations made are additionally saved so they can be readjusted quickly.

Maximum color depth, including infrared

Our raw data is like a digital original. It contains all the data that the scanner has recorded. The scans are carried out with a maximum color depth of 48 bit, so that sufficient gray levels are available for further image processing. Scanners with an infrared channel even contain the infrared data for dust and scratch removal.

Embedded color profile

The color profile of the scanner is embedded in the raw data in order to ensure correct reproduction on other output devices, so that the images can be processed with correct color. Every computer using SilverFast HDR Studio. Ideally suited for this is a colour profile that is created with our patented, fully automatic

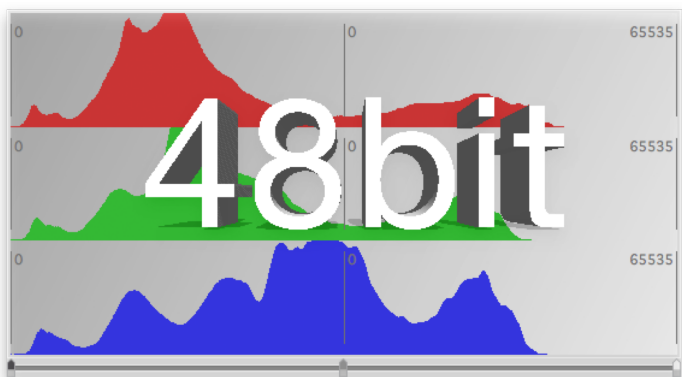
ner profiling according to the IT8 standard

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Flexibility by disconnecting scan and image processing
SilverFast raw data is designed in such a way that it contains all the data provided by the scanner. The scanner does not have to be accessed afterwards, a re-scanning is not necessary. This allows the scanning process to be separated spatially and temporally from the processing of the images. The images can be edited on any computer on which SilverFast HDR Studio is installed.

Default file format

SilverFast raw data is saved in the TIFF or PSD format, which can be directly used with third party software, such as Photoshop. These file formats ensure compatibility and future security. SilverFast HDR Studio's dust and scratch removal cannot be used with the PSD format. To use it, you have to export the image to SilverFast HDR Studio.

Complete image processing with SilverFast HDR Studio

SilverFast HDR Studio contains in a very compact way all the essential tools of classical image processing. It can help restore your images to their original state. SilverFast HDR Studio's image processing software is therefore not only a tool of course but can of course be used for creative work.

--	--	--

		High Definition
		High Definition

LaserSoft Image



1. Scan



Now!

2. Edit



Anytime
& Anywhere

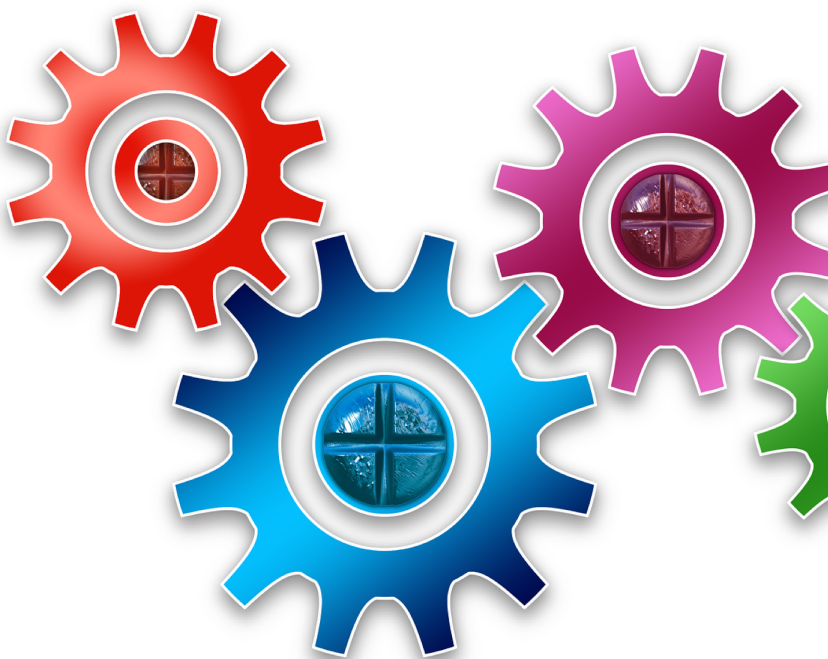
When everything interlocks:

SilverFast raw data offers the best possible operating security and the various prerequisites for large digitisation projects. Employees or assistants are used.

More about the raw data concept can be found at <https://www.silverfast.com/show/archiv>

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Digitisation outsourcing

is a thing of the past

Part 3

There are service providers for the digitisation of images. As a rule, each image is billed which makes it scanner interesting even for small collections. Charge for the processing of pictures.

However, leaving digitisation to a service provider has several disadvantages:

1. The pictures will be sent twice by post. If you have many images.
1. You hand over your originals. You can only rely on them carefully.
1. The service provider may process the images as they see fit. You depend on the service provider. This is actually only the case with manual digitisation. If you also have to rework yourself, you have to pay for it.

Images are our cultural heritage and irreplaceable. Digitise yourself whether you want to let someone else do it or not.

Minimize risks, maximize efficiency



Never before has it been so easy to digitize
protect your images from inevitable decay. The
the results are simply sensational.

Scanning with Sil

LaserSoft Imag

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[www.SilverFast](http://www.SilverFast.com)

Chapter 6

Thanks to the raw data used, just a
create your own preset, which can

a button.



SilverFast HDR Studio is the perfect comp
verFast HDR Studio you have full access t
SilverFast HDR Studio processes your ima
permanently changing the scanned image

Processing image SilverFast HDR St

LaserSoft Imag

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[www.SilverFast](http://www.SilverFast.com)

Chapter 7

SilverFast HDR Studio is a good su
data workflow; digitally photograph
easy to edit using SilverFast HDR S



SilverFast HDR Studio offers all tools for t
your images in focused form.

A Virtual Light Table and a unique JobMa
scanned images. This also allows you to t
made for one image to other images and p
a time-saving manner.

HDR Studio is worth a look:

<https://www.silverfast.com/48bit-hdr-sof>

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The virtual light table displays your pictures as a



BUSINESS.SILVERFA

SilverFast Solutions for Museums, Authorities and

SilverFast is already in use in many comp areas and production processes. The IT8 scanner into a profiled measuring device solution. This allows cost-effective quality In this way, production processes can be existing devices can even be completely r

SilverFast Business

LaserSoft Imaging

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www.SilverFast.com

Chapter 8

SilverFast can be used in many areas. With our experience in the field of digitisation and image processing, we can adapt SilverFast to your needs. Ask us!



Analog

In this iBook, analog as the opposite of "digital" thing that can be found as a scan template on paper etc.

Verwandte Glossarbegriffe

Index

[Kapitel 1 - Introduction](#)

Color Calibration

During the calibration of the scanner, the scanner measures a color measuring card, a so-called calibration target, and creates an ICC color profile. This device-specific ICC profile is then used by the operating system to correctly reproduce colors. Strictly speaking, the calibration of the scanner does not alter the scanner, but a color profile for the scanner is created.

Verwandte Glossarbegriffe

Index

[**Kapitel 2 - The next level for your scanner**](#)

Color space

Color space is a three-dimensional model of all colors that can be produced by a coloring method. As coloring method, all equipment and materials are referred to, which are used by printers and monitors but also prints.

Source: Wikipedia article on color space:

https://en.wikipedia.org/wiki/Color_space

Verwandte Glossarbegriffe

Index

[Kapitel 4 - Scanner-Calibration](#)

Dynamic Range

Dynamic range, or contrast range, describes the difference between black and white. One has to distinguish between the image and that of the scanner. In this iBook, we will look at the dynamic range of the scanner.

Verwandte Glossarbegriffe

Index

[**Kapitel 2 - The next level for your scanner**](#)

Grayscales

In an image, the range of contrast is determined by the darkest point in the image and the brightest point in the image. Grayscale is the range between these two points. The color depth determines how many different shades of gray can be present. With 24 bit color depth 256 grayscales are possible. With 48 bit you get 65536, which is considerably more. A high number of grayscales during scanning is important for smooth transitions and serves as a key feature for high resolution.

Verwandte Glossarbegriffe

[Resolution](#)

Index

ICC Profile

An ICC profile is a file that describes the color characteristics of a device. ICC profiles are required so that the color management system can convert color data between different input devices (e.g. scanners) on different operating systems, printers) correctly.

Verwandte Glossarbegriffe

Index

[Kapitel 4 - High-quality RAW data for convincing quality](#)

Interpolated resolution

Interpolation is always used when a value is calculated. In terms of scanning, this term is usually used in connection with interpolation and usually refers to resolutions that are lower than the original resolution. This means that image data must be available at all.

As far as the resolution allows it, SilverFast uses interpolation in this case and thus effectively prevents loss of data. If data is discarded, which does not mean a loss of data above the highest optical resolution of the scanner, SilverFast applies interpolation.

Verwandte Glossarbegriffe

[Optical Resolution](#), [Resolution](#)

Index

Lossless Editing

Lossless image processing in SilverFast means the end of the processing. In the SilverFast raw depth and even the data from the infrared channel. Removal of dust and scratches.

Verwandte Glossarbegriffe

[Non-destructive Editing](#), [Raw Data](#), [Scanner Raw Data V](#)

Index

Multi-Exposure

LaserSoft Imaging's patented multiple exposure combines a regular scan and a scan with increased image with increased dynamic range.

Verwandte Glossarbegriffe

Index

Kapitel 2 - The next level for your scanner

[Kapitel 4 - Resolution](#)

Non-destructive Editing

Non-destructive processing in the SilverFast raw workflow means that the scanned raw data is not changed, but is always available. During image processing, a new image file is created from the raw data.

This means you can return to the original at any time without having to scan it again.

Verwandte Glossarbegriffe

[Lossless Editing](#), [Raw Data](#), [Scanner Raw Data Workflow](#)

Index

Optical Resolution

Optical resolution is the ability of the scanner to resolve fine structures. The optical resolution can be measured using resolution test charts.

The highest optical resolution of a scanner is achieved when the lines are clearly perceived as individual bars.

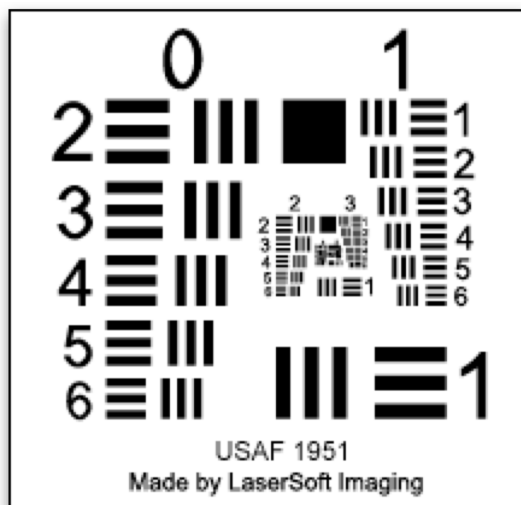
More information on the resolution target can be found at verfast.com/show/resolution-target/en.html

Verwandte Glossarbegriffe

[Interpolated resolution](#), [Resolution](#)

Index

[Kapitel 4 - Resolution](#)



Presets

We call „presets“ a selection of certain settings so that the scans no longer have to be configured. For example, if you select a 35mm positive with a suitable resolution, a prescan is carried out, activated and the images are stored in a suitable

Verwandte Glossarbegriffe

Index

[Kapitel 1 - Introduction](#)

Raw Data

Camera Raw data is already familiar to many, but scanner data is usually manufacturer-specific, if not even more so. However, we refer to scanner RAW data. The SilverFast RAW data is worldwide the only scanner RAW data, which includes the infrared channel of the scanner (if available) in addition to the depth. Read more about our scanner RAW data and how lossless and non-destructive editing can offer you more flexibility. In SilverFast you recognize raw data by the name of the scanner.

Verwandte Glossarbegriffe

[Lossless Editing](#), [Non-destructive Editing](#)

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Resolution

Resolution is the dot density of an image. Together with color depth, it is decisive for image quality. In digitizing we distinguish between input and output resolution. The input resolution refers to the scanner, the output resolution refers to the scanned image or the print. The unit ppi (pixels per inch) is used for input resolution and dpi (dots per inch) for output resolution.

To a certain extent, higher resolution can improve image quality. But much more important is the number of gray levels.

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SAC

SAC is the abbreviation for *Single Archive Com*

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Scanner

A scanner is an optical device that can be used to scan documents. SilverFast supports only "real" scanners. Cheap webcams with a single camera chip do not work with SilverFast.

We have prepared a list of supported devices for SilverFast.

<http://www.silverfast.com/show/sf8-scanners>

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Scanner Raw Data Work

The SilverFast Archive Suite divides the digitized image into two parts. With the SilverFast Ai Studio scanner RAW data, the original image data (RAW data) contains everything that the scanner has captured during scanning and makes it available to the SilverFast HistoPro software used to carry out the image processing as second step. The advantages of a scanner RAW data workflow are:

- Non-destructive editing

- Lossless editing of data

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Single Archive Command

The Single Archive Command is a free feature of the software, which offers additional scanning speed and security against accidental settings.

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Wilhelm Imaging Research

Institute dedicated to the analysis of print and

<http://www.wilhelm-research.com/>

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